

material having an intensity ratio less than 0.2 and that the specification does not describe how such an intensity ratio was obtained.

As suggested by the Examiner, Applicants submit herewith, pursuant to 37 C.F.R. § 1.132, a Declaration by inventor Wan-uk Choi that sets forth the procedures used in measuring the claimed intensity ratio. In particular, the Declaration (1) indicates the equipment used to measure the carbon material, (2) indicates the wavelength of light used during the measurements, and (3) includes graphs showing diffraction peak intensities of sample materials that were prepared according to the techniques taught in Applicants' specification. Thus, Applicants submit that the Declaration submitted herewith clarifies the methodology used to a degree sufficient to enable one skilled in the art to make and use the claimed embodiments. Accordingly, Applicants respectfully request withdrawal of the rejection of Claims 1-4.

The Examiner also rejects Claims 1-4 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Specifically, the Examiner states that the intensity ratio recited in Claims 1 and 3 is relative and renders the claims indefinite since the specification and claims do not define the intensity ratio in a manner that would reasonably apprise one skilled in the art of the scope of the invention. In response, Applicants submit that the Declaration of Wan-uk Choi defines the methodology used in obtaining the intensity ratio such that one skilled in the art would be apprised of the scope of Applicants' claims. Accordingly, Applicants respectfully request withdrawal of the rejection of Claims 1-4.

## **II. Claims Rejected Under 35 U.S.C. § 102(e)/103(a)**

The Examiner rejects Claims 1-4 under 35 U.S.C. 102(e)/103(a) as being anticipated by and alternatively obvious over U.S. Patent No. 6,139,990 to Kubota, et al. ("Kubota"). Applicants respectfully traverse this rejection.

Applicants note that Kubota was filed on September 10, 1998, which was nine months after Applicants' foreign priority date of March 10, 1998, based on Korean Patent Application No.

1998-7854. Thus, Kubota cannot be properly cited against the present application. Accordingly, Applicants respectfully request withdrawal of the rejection of Claims 1-4.

The Examiner rejects Claims 1-4 under 35 U.S.C. 102(e)/103(a) as being anticipated by and alternatively obvious over U.S. Patent No. 5,932,373 to Nagamine, et al. ("Nagamine"). Applicants respectfully traverse this rejection.

In order to anticipate a claim, the relied upon reference must disclose every limitation of the claim. In order to render a claim obvious, the relied upon reference must teach or suggest every limitation of the claim such that the invention as a whole would have been obvious at the time the invention was made to one skilled in the art. Among other limitations, independent Claims 1 and 3 each recite a graphite carbon material having an intensity ratio  $I(110)/I(002)$  of less than 0.2, wherein, among others, the graphite carbon material is formed by dissolving a coal tar pitch or a petroleum pitch in an organic solvent to remove organic-insoluble components therefrom and to obtain organic-soluble components, coking the pitch including mesophase particles, and carbonizing the coked pitch. Applicants submit that at least these limitations are neither taught nor suggested by Nagamine.

In maintaining the rejection, the Examiner states that Applicants have not shown that the claimed negative active material is materially different from that of Nagamine. The Examiner reaches this conclusion based on Nagamine's preparation of synthetic graphite by carbonizing and graphitizing an organic compound, concluding that "organic compound" necessarily precludes the existence of organic-insoluble components when the carbon material is prepared. The Examiner states that Applicants must show that the products of the claims are different from those disclosed by Nagamine.

In response, Applicants first note that Nagamine fails to teach or suggest material having an intensity ratio as recited in Claims 1 and 3. Furthermore, the products produced by the methods recited in Claims 1 and 3 are distinct from the products of Nagamine. First, the starting materials are different. In particular, Nagamine begins with an organic compound while Claims 1 and 3 begin with one of a coal tar pitch and a petroleum pitch, both of which contain organic-insoluble

components. Second, Nagamine fails to teach or suggest coking the pitch, as recited in Claims 1 and 3. Third, Nagamine fails to teach or suggest carbonizing the coked pitch, as recited in Claims 1 and 3.

Nagamine discloses a carbonization process conducted on the organic compound, a calcination process conducted on the carbide resultant of the carbonization process, graphitization of the calcined product, and pulverization to form a powder (Col. 4, lines 1-31). Applicants contend that none of the steps of Nagamine can be properly characterized as “coking a pitch” or “carbonizing a coked pitch.” A copy of the definition of “coking” according to the International Union of Pure and Applied Chemistry is submitted herewith. Thus, in light of the absence in Nagamine of “coking a pitch” and “carbonizing a coked pitch” and the difference in starting materials between Nagamine and Applicants’ Claims 1 and 3, the end products of Claims 1 and 3 are necessarily distinct from products created according to the disclosure of Nagamine.

Accordingly, Applicants respectfully request withdrawal of the rejection of independent Claims 1 and 3. Claims 2 and 4 depend from Claims 1 and 3, respectively. Therefore, Claims 2 and 4 are not anticipated or obvious at least for the same reasons as their respective independent claims.

The Examiner rejects Claims 1-8 under 35 U.S.C. 102(e)/103(a) as being anticipated by and alternatively obvious over U.S. Patent No. 5,906,900 to Hayashi, et al. (“Hayashi”). Applicants respectfully traverse this rejection.

Among other limitations, independent Claims 1, 3, and 5 each recite dissolving a coal tar pitch or a petroleum pitch in an organic solvent to remove organic-insoluble components therefrom and to obtain organic-soluble components, heat-treating the organic-soluble components to produce at least 50 weight percent of mesophase particles based on the pitch, coking the pitch including mesophase particles, carbonizing the coked pitch, pulverizing the carbonized pitch, and graphitizing the pulverized pitch. Applicants submit that not all of these limitations are taught or suggested by Hayashi.

Applicants first note that Hayashi fails to teach or suggest coking the pitch, as recited in Claims 1, 3, and 5. Steps B and C of Hayashi respectively correspond to a heating step to obtain an intermediate (Col. 6, line 63-Col. 8, line 28) and a carbonization step (Col. 8, lines 29-63). Noticeably absent from Hayashi is any step analogous to the coking recited in Applicants' Claims 1, 3, and 5. Furthermore, although Hayashi finishes the process by powdering the carbonized substance from the carbonization step, absent from Hayashi is any teaching or suggestion of graphitization of a pulverized pitch, as recited in Applicants' Claims 1, 3, and 5.

Thus, the products produced by the processes of Applicants' Claims 1 and 3 are materially different from any product made according to the disclosure of Hayashi, which also lacks any disclosure of an intensity ratio, as recited in Claims 1 and 3. Regarding Claim 5, Hayashi fails to teach or suggest all of the limitations of Claim 5 for producing a negative active material.

Accordingly, Applicants respectfully request withdrawal of the rejection of independent Claims 1, 3, and 5. Claims 2, 4, and 6-8 depend from Claims 1, 3, and 5, respectively. Therefore, Claims 2, 4, and 6-8 are not anticipated or obvious at least for the same reasons as their respective independent claims.

### **III. Claims Rejected Under 35 U.S.C. §103(a)**

The Examiner rejects Claims 5-8 under 35 U.S.C. 103(a) as being obvious over U.S. Patent No. 5,721,071 to Sonobe, et al. ("Sonobe"). Applicants respectfully traverse this rejection.

In order to render a claim obvious, the relied upon reference must teach or suggest every limitation of the claim such that the invention as a whole would have been obvious at the time the invention was made to one skilled in the art. Among other limitations, independent Claim 5 recites dissolving a coal tar pitch or a petroleum pitch in an organic solvent to remove organic-insoluble components therefrom and to obtain organic-soluble components, heat-treating the organic-soluble components to produce at least 50 weight percent of mesophase particles based on the pitch, coking the pitch including mesophase particles, carbonizing the coked pitch, pulverizing the carbonized

pitch, and graphitizing the pulverized pitch. Applicants submit that not all of these limitations are taught or suggested by Sonobe.

Applicants note that Sonobe fails to teach or suggest coking the pitch, as recited in Claim 5. The procedure disclosed by Sonobe requires heat treating pitch, recovering mesophase beads with pyridine or quinoline, and calcining mesophase beads in an inert atmosphere (Col. 2, lines 17-30). In this regard, Applicants note that the heat treatment of Sonobe cannot read upon both the “heat treating” and the “coking” of Claim 5. In fact, completely absent from Sonobe is any teaching or suggestion of coking a pitch, as recited in Applicants’ Claim 5. Thus, not all of the limitations of Claim 5 are taught or suggested by Sonobe.

Accordingly, Applicants respectfully request withdrawal of the rejection of independent Claim 5. Claims 6-8 depend from Claim 5 and are not obvious at least for the same reasons.

### CONCLUSION

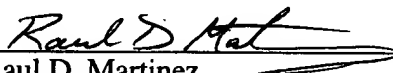
In view of the foregoing, it is believed that all claims now pending (1) are in proper form, (2) are neither obvious nor anticipated by the relied upon art of record, and (3) are in condition for allowance. A Notice of Allowance is earnestly solicited at the earliest possible date. If the Examiner believes that a telephone conference would be useful in moving the application forward to allowance, the Examiner is encouraged to contact the undersigned at (310) 207-3800.

If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17, particularly, extension of time fees.

Respectfully submitted,

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Dated: 4/29, 2002

  
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#### CERTIFICATE OF MAILING:

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Box For Amendment, Assistant Commissioner for Patents, Washington, D.C. 20231, on April 29, 2002.

  
Lillian E. Rodriguez

4-29-02  
April 29, 2002



### **coking**

Many reactions involving hydrocarbons and particularly those run at higher temperatures lead to the deposition on the *catalyst* of high molecular weight compounds of carbon and hydrogen which deactivate the catalyst. This phenomenon is called coking or fouling. Catalysts so deactivated can often be regenerated.

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